

## **Boson operator elimination method in the laser cooling of solids**

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### **Abstract**

We use Bogoliubov's boson variables elimination method to investigate the laser cooling of solid samples. We derive an exact kinetic equation for the quantum description of the laser cooling of glasses and crystals doped by rare-earth ions and find its stationary solution. We estimate the temperature of a laser-cooled glass doped by three-valence ytterbium.

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